

**WHAT IS CLAIMED IS:**

1. A method for calibrating a level measurement system operating with a current loop, said method comprising the steps of:
  - outputting a first current level;
  - inputting a current output level corresponding to said first current level;
  - outputting a second current level;
  - inputting a current output level corresponding to said second current level;
  - determining whether said first current output level is within a first range;
  - establishing a first current level setting corresponding to said first current output level if said first current output level is within range;
  - determining whether said second current output level is within a second range; establishing a second current level setting corresponding to said second current output level if said second current output level is within range;
  - and
  - using said first current level setting and said second current level for generating respective first and second current outputs on the current loop.
2. The method as claimed in claim 1, wherein said first current level comprises a value stored in memory and said first current output corresponds to a low current output on the current loop.
3. The method as claimed in claim 2, wherein said second current level comprises another value stored in memory and said second current output corresponds to a high current output on the current loop.
4. The method as claimed in claim 3, wherein the current loop comprises a 4 to 20 mA loop, and said low current output is approximately 4 mA, and said high current output is approximately 20 mA.

5. The method as claimed in claim 4, wherein said first range is between 2 mA to 6 mA, and wherein said second range is between 18 mA to 22 mA.
6. The method as claimed in claim 1, further including the step of setting said first current level setting to a first default value if said first current output level is out of said first range.
7. The method as claimed in claim 6, further including the step of setting said second current level setting to a second default value if said second current output level is out of said second range.
8. The method as claimed in claim 7, wherein said first default value corresponds to the first current output having a magnitude of approximately 4 mA.
9. The method as claimed in claim 8, wherein said second default value corresponds to the second current output having a magnitude of approximately 20 mA.
10. A method for calibrating a level measurement device operating on a current loop, said current loop providing a communication channel having an output current level controllable between a first level and a second level for representing a process variable, said method comprising the steps of:
  - outputting a first current level;
  - inputting a current reading from the current loop;
  - outputting a second current level;
  - inputting a current reading from the current loop;
  - determining whether said first current reading is within a first range;
  - establishing a first current level setting corresponding to said first current reading if within said first range;
  - determining whether said second current reading is within a second range;

establishing a second current level setting corresponding to said second current reading if within said second range ;  
utilizing said first current level setting to generate the output current for indicating the first level in the current loop;  
utilizing said second current level setting to generate the output current for indicating the second level in the current loop.

11. The method as claimed in claim 10, wherein said first current level is generated based on a first internal setting.
  12. The method as claimed in claim 11, wherein said second current level is generated based on a second internal setting.
  13. The method as claimed in claim 12, wherein said first internal setting comprises a value stored in memory and said first current level corresponds to the first level on the current loop.
  14. The method as claimed in claim 13, wherein said second internal setting comprises another value stored in memory and said second current level corresponds to the second level on the current loop.
  15. The method as claimed in claim 14, further including the step of setting said first current level setting to a first default value if said first current reading is out of range.
  16. The method as claimed in claim 15, further including the step of setting said second current level setting to a second default value if said second current reading is out of said second range.
  17. A level measurement system for coupling to a remote receiver through a two-conductor loop carrying a current signal, the two-conductor loop providing a signal
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path for the level measurement system to transmit process variable data to the remote receiver, said level measurement system comprising:

- a process variable measurement stage comprising,
- a transducer for emitting energy pulses and coupling reflected energy pulses;
- and

- a controller having a receiver stage and a transmitter stage;

said transducer being operatively coupled to said transmitter stage and being responsive to said transmitter stage for emitting said energy pulses, and said receiver stage being operatively coupled to said transducer for receiving reflected energy pulses coupled by said transducer, and said controller including a component for processing said receiver output and generating measurement data;

- a current loop interface module, said current loop interface module having an output port for coupling to the current loop, and including an input port coupled to said controller for receiving control signals to generate current signals on the current loop;

- a calibration module, said calibration module comprising a component for generating a first current signal for the current loop and a component for inputting a current level associated with said first current signal, said calibration module including a component for generating a second current signal for the current loop and a component for inputting a current level associated with said second current signal;

- said calibration module further including a component for assigning said first current level to a first current setting if said first current level is within a range, and a component for assigning said second current level to a second current setting if said second current level is within a range;

- said current loop interface module including a memory component for storing said first and said second current settings, and said first and said second current settings providing control signals for generating the current signals for the current loop.

18. The level measurement system as claimed in claim 17, further including a component for setting said first current setting to a default value if said first current level is out of said first range.

19. The level measurement system as claimed in claim 18, further including another component for setting said second current setting to a default value if said second current level is out of said second range.

20. The level measurement system as claimed in claim 19, wherein said first default value corresponds to a current level of approximately 4 mA.

21. The level measurement system as claimed in claim 20, wherein said second default value corresponds to a current level of approximately 20 mA.